ORAL COMMENTS

Report of the President's Council on the National Laboratories
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UC Board of Regents Meeting
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I am pleased to bring you the ninth annual report of the UC President's Council on the National Laboratories – my third appearance before you. I understand that there are a number of new Regents so I will share with you the work of the Council and how we are trying to assist the University and the three UC-operated Department of Energy National Laboratories: Lawrence Berkeley, Lawrence Livermore, and Los Alamos. These Laboratories are making unique contributions to our nation, and you should be very proud that these Laboratories are members of the UC community. We on the Council are here to assist President Atkinson and all of you in your stewardship of these assets and we take that responsibility very seriously.

The Council (2) was established in 1992 by President Gardner to advise him on all aspects of the operation and management of the Laboratories. I have been chair since 1999, succeeding Sid Drell who was the founding Chair. I asked UC San Diego Chancellor Bob Dynes to serve as my Vice Chair since his expertise and experience nicely complement mine for the work of the Council. The Council members (3) are accomplished individuals from academia, industry, and the military. Senior officials from the President's Office and the Academic Council serve as ex-officio members.

The Council has 5 constituent Panels (4). There are two "line" Panels, the Science and Technology and the National Security Panels, that have responsibility for the review of the programmatic work at the Laboratories. The other three Panels, the Laboratory Security, Project Management, and Environment, Safety and Health Panels, support the operational activities at the Laboratories. I think you will find it gratifying that some 63

prestigious and very busy people are contributing their expertise and energy to serve on the memberships of the Council and its five Panels

I'd like to begin with the latter 3 Panels since I feel they sometimes get short shrift in our discussions. These so-called functional Panels are hard-working groups that have contributed needed expertise to the Council and have provided beneficial advice to the Laboratories. The Laboratory Security Panel (5) is a relatively new Panel, but one of critical importance in recent times. It has recently transitioned to a new Chair, Jim Geer (6), recently retired from his position as the Director of Corporate Security for DuPont and formerly Assistant Director of the FBI and Head of its Intelligence Division. During the last year, the Panel has focused on a number of issues (7), including building a relationship with senior DOE officials responsible for security and counterintelligence. The Panel now advises the Laboratories in meeting the challenges imposed by the changing threat in the post-9/11 environment. More than ever, it is important that the Laboratories receive adequate resources and be allowed to apply those resources based upon greatest threat as determined through sound risk management evaluations. One of the Panel's greatest concerns is cybersecurity or protection of the Laboratories' vast computer resources (8) and protected information. When I discuss the staggering computing capabilities of the three Laboratories, you will begin to understand the enormity of that task.

The Project Management Panel (9) has also undergone a recent change in leadership. After serving for two years as the founding chair, I had been looking for a successor. We have been extremely lucky to persuade Paul Gilbert (10) to take over this duty. Paul is a Senior Vice President with Parsons Brinckerhoff Quade and Douglas and a member of the National Academy of Engineering. He has 41 years of project management experience with many of the largest science projects fielded by this country. During the past year, the Panel has reviewed progress of those major projects at the Laboratories that present particular challenges, usually due to their scientific complexity. I can report that project management at the Laboratories has greatly improved in recent years and that the projects reviewed are generally in good shape. Given that some are in the formative

stages (11), we will continue to monitor those projects as they develop. In an effort to keep that positive trend on track, the Panel also has encouraged the Laboratories to systematically work through the various issues in development of a project (12) to ensure that all are adequately addressed. From this list of issues, you will note several that were not adequately addressed in the past and led to some less-than-satisfactory results. We would like to prevent that happening again.

As one of the initial Council Panels established in 1992, the Environment Safety and Health Panel has a long history of service and is so hardworking that they don't even have a photograph (13)!! But they have been working with the Laboratories as they implement Integrated Safety Management (14), which involves a culture change to drive responsibility for safety down to the individual worker and to ensure that safety is everyone's responsibility, not just the safety officer. As the Laboratories pursue enhanced facilities for biosafety work, the Panel has established a smaller subgroup to work the issues inherent in this work, including the important task of good communication with the community regarding their plans and activities.

This then takes us to the "line" Panels that look at the core scientific and programmatic work at the Laboratories. After all, it is the outstanding scientific and technological work at all three Laboratories that is their very reason for existence, whether it is applied to national defense work or to most basic scientific questions of our time. It is preservation of the capability to accomplish this work and enhancement of the contribution of the University of California to that enterprise that is the impetus for the Council's existence.

The National Security Panel (15) works with Livermore and Los Alamos to ensure that they are meeting their national security responsibilities in an exemplary manner. Undoubtedly, most of their time is spent on the Stockpile Stewardship Program (16), where they have stressed that the Laboratories should strive to enhance their collaboration and cooperation. You understand that those two Laboratories were designed to be competitors, and it is important that some of that culture be preserved. In the nuclear weapons community, they must be each other's peer reviewers -- they must

Red Team the other's scientific theories and results. But in a world of tight budgets, they must also achieve efficiencies through collaboration. The Panel has steadfastly encouraged this closer cooperation, while realizing and respecting the fact that there will not always be scientific agreement. Through the years, the Panel has seen enhanced collaboration (17) on the Life Extension Programs for various weapons systems. These are led by one Laboratory, but have critical involvement by the other. The Panel reviews the subcritical tests (18) performed by each Laboratory at the Nevada Test Site and applauds their complementarity. And the Panel has seen the results of experiments fielded by both Laboratories at each other's unique facilities (19). Taken together, these Laboratories provide a capability unique in the world, and the Panel is pleased to advise on how to help best utilize this remarkable resource.

I think none of us can have lived through the last six months without appreciating the importance of the Laboratories' contributions and potential for future response to the world that we have found ourselves in since September 11th. The Laboratories' activities in nonproliferation for many years and in Homeland Security for the last six months also fall under the purview of the National Security Panel. You heard from Vice President McTague in November about some of the Laboratories' capabilities and expertise that have been fielded in response to 9-11 and the subsequent anthrax attacks (20). This is a truly impressive story since, as he mentioned to you, their response was possible because of the foresight of Laboratory scientists anticipating a need many years in advance. It is also a marvelous story of coordination (21) of complementary expertise and capability among the Laboratories. Again, a capability and a response that should make the University very proud.

That brings us to the Science and Technology, or S&T, Panel (22). This Panel covers the gamut of all the research and development work at all three Laboratories, including the Council's onerous task of grading the S&T work of the Laboratories each year (23). I am pleased to report that the Panel awarded all three Laboratories an overall S&T grade in the low 90's, which is in the outstanding category. But those simple numerical scores cannot describe to you the scientific and technical strength of these Laboratories as well

as another graphic (24). This shows the top 20 computers in the world, and I have highlighted those operated by the University of California. UC operates 48% of the top computing capability of the world!! With the exception of the UC San Diego Supercomputing Center, these of course reside at the Laboratories (25). Now, add in the thousands of smaller personal computers, most with access to the internet, and you can really appreciate the concerns of our Laboratory Security Panel! While a significant portion of the Laboratories' supercomputer capacity is used for classified work, all of Berkeley's NERSC and much of the other Laboratories' capability is used to conduct unclassified computations and simulations that advance science in the nation's interest across a huge spectrum of disciplines and areas of investigation (26).

I understand that Chuck Shank will be giving you his Laboratory Report at your May meeting, so I do not want to steal any of his well-deserved thunder. However, there are some stories associated with the Berkeley Laboratory in which the S&T Panel also share some rightful pride. One is the Joint Genome Institute (27), or JGI, which combines the capabilities and expertise of all three Laboratories to succeed as a major player in the sequencing of the human and other genomes of importance to mankind. The S&T Panel provided strong and persistent encouragement to the Laboratories to accomplish this very tight synergistic coupling and to overcome the cultural and organizational impediments and challenges. The Laboratories did it, and the JGI has achieved impressive results.

All of the work of these Panels funnels into the full Council so that we benefit from their collective reviews and are able to cover a rather full, if high level, spectrum of the programmatic work and operations of the Laboratories. We applaud the fact that, for the first time, the collective annual score (28) in Lab Management, Science and Technology, and Administration and Operations, at all three Laboratories was in the outstanding range. This is quite an accomplishment! The Council provides review and advice when there are major issues, and we congratulate when there are major improvements and successes. For example, at least one facility at each of the Laboratories was once the focus of high-level concern by the DOE. In each case, the Council and one or more of its Panels gave issues associated with those concerns our collective attention. More

importantly, the Laboratories devoted a great deal of management effort to correcting those concerns. The ALS (29) is now a busy facility with a large and satisfied user community, and is producing exciting, cutting-edge science. LANSCE (30) has had a major turn-around in beam reliability and user utilization and satisfaction. NIF (31) is now on budget and schedule, major technical challenges have been met, and it is anticipating start-up and commissioning of the first four laser beams by June 2004. DARHT (32), a tri-lab effort, is conducting experiments with spectacular results on the first arm, while the second arm is still under construction. These are remarkable achievements.

But the Council also reviews the service that the Laboratories render to their local constitutencies (33), including the state and local communities. It also is concerned with maintaining the quality of the expertise at these Laboratories, including retention of valued staff (34), recruitment of the best and brightest, and career development of both. As with most leading institutions, people are the key to our continued success. And further in this regard, the Council looks to the future of the Laboratories. We are interested in the vision that the Laboratory Directors have for their institutions, and review those initiatives that the Laboratories see as the future. Just to mention a few – they include the biology of the future (35), including the structure and function of proteins, which is an area that the Laboratories are already excelling in and building as a core strength. Another is nanoscience (36), the science of the small and clearly an area where the Laboratories already have a leg up. And advanced radiography (37), which will advance their national defense responsibilities. We are also very pleased with the many collaborations among the Laboratories and the UC campuses (38), including the potential of significant research synergies and joint appointments with the new Merced campus.

These are exciting times for the Laboratories, and the University should be very proud of the service that they render and the resource that they are to the nation (39). The Council is pleased that we can assist the University in this exemplary service to the nation.